



SEQUENCE LISTING

<110> Armour, Christopher
Castle, John
Garrett-Engeler, Philip
Johnson, Jason

<120> ALTERNATIVELY SPLICED ISOFORMS OF HUMAN PHKA2

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<141> 2003-08-26

<150> US 60/408,058

<151> 2002-09-03

<150> US 60/431,474

<151> 2002-12-05

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Tyr Ser Ile Leu Ala Val Trp Gly Leu Gly Met Ala Tyr Arg Lys Asn
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Val Val Lys Leu Met Arg Gly Leu Leu Gln Cys Met Met Arg Gln Val
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Ala Lys Val Glu Lys Phe Lys His Thr Gln Ser Thr Lys Asp Ser Leu
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His Ala Lys Tyr Asn Thr Ala Thr Cys Gly Thr Val Val Gly Asp Asp
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Gln Trp Gly His Leu Gln Val Asp Ala Thr Ser Leu Phe Leu Leu Phe
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Lys Val Ala Asp Tyr Gly Met Trp Glu Arg Gly Asp Lys Thr Asn Gln
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Asp Cys Ser Asn Leu Gln Asp Gln Ala Asp Ile Leu Tyr Ile Leu Tyr
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Val Ile Lys Gly Pro Ser Trp Asp Thr Asn Leu Ser Gly Gln His Gly
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Val Thr Val Gln Asn Leu Leu Gly Glu Leu Tyr Gly Lys Ala Gly Leu
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Asn Gln Glu Trp Gly Leu Ile Arg Tyr Ile Ser Gly Leu Leu Arg Lys
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Lys Val Glu Val Leu Ala Glu Ala Cys Thr Asp Leu Leu Ser His Gln
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Lys Gln Leu Thr Val Gly Leu Pro Pro Glu Pro Arg Glu Lys Ile Ile
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Ser Gly Gln Asp Ile Ser Ile Ala Val Leu Thr Gln Glu Ile Val Val
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Ala Arg Ser Leu Asn Cys Ser Gly Glu Glu Ala Ser Glu Ser Leu Met
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Asn Leu Ser Pro Phe Asp Met Lys Asn Leu Leu His His Ile Leu Ser
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Ala Asp Arg Asp Glu Asp Lys Ala Lys Ala Tyr Glu Leu Glu Gln Asn
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Val Val Lys Leu Met Arg Gly Leu Leu Gln Cys Met Met Arg Gln Val
 85 90 95

Ala Lys Val Glu Lys Phe Lys His Thr Gln Ser Thr Lys Asp Ser Leu
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His Ala Lys Tyr Asn Thr Ala Thr Cys Gly Thr Val Val Gly Asp Asp
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Gln Trp Gly His Leu Gln Val Asp Ala Thr Ser Leu Phe Leu Leu Phe
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Leu Ala Gln Met Thr Ala Ser Gly Leu Arg Ile Ile Phe Thr Leu Asp
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Glu Val Ala Phe Ile Gln Asn Leu Val Phe Tyr Ile Glu Ala Ala Tyr
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Lys Val Ala Asp Tyr Gly Met Trp Glu Arg Gly Asp Lys Thr Asn Gln
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Gly Ile Pro Glu Leu Asn Ala Ser Ser Val Gly Met Ala Lys Ala Ala
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Leu Glu Ala Ile Asp Glu Leu Asp Leu Phe Gly Ala His Gly Gly Arg
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Lys Ser Val Ile His Val Leu Pro Asp Glu Val Glu His Cys Gln Ser
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Val Asn Leu Val Asn Val Thr Lys Asn Glu Ile Ile Ser Lys Leu Gln
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Lys Asn Pro His Thr Val Asp Arg Val Pro Met Gly Lys Val Pro His
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Phe Leu Ala Ala Gly Glu Ile Asp Pro Leu Asn Arg Arg Phe Ser Thr
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Ser Val Lys Pro Asp Val Val Val Gln Val Thr Val Leu Ala Glu Asn
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Asn His Ile Lys Asp Leu Leu Arg Lys His Gly Val Asn Val Gln Ser
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His Ile Tyr Ala Lys Leu Gly Arg Asn Lys Asn Met Asn Leu Ser Gly
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Arg Pro Tyr Arg His Ile Gly Val Leu Gly Thr Ser Lys Leu Tyr Val
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Ala Lys Val Glu Lys Phe Lys His Thr Gln Ser Thr Lys Asp Ser Leu
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His Ala Lys Tyr Asn Thr Ala Thr Cys Gly Thr Val Val Gly Asp Asp
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Gln Trp Gly His Leu Gln Val Asp Ala Thr Ser Leu Phe Leu Leu Phe
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Leu Ala Gln Met Thr Ala Ser Gly Leu Arg Ile Ile Phe Thr Leu Asp
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Glu Val Ala Phe Ile Gln Asn Leu Val Phe Tyr Ile Glu Ala Ala Tyr
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Lys Val Ala Asp Tyr Gly Met Trp Glu Arg Gly Asp Lys Thr Asn Gln
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Gly Ile Pro Glu Leu Asn Ala Ser Ser Val Gly Met Ala Lys Ala Ala
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Leu Glu Ala Ile Asp Glu Leu Asp Leu Phe Gly Ala His Gly Gly Arg
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Lys Ser Val Ile His Val Leu Pro Asp Glu Val Glu His Cys Gln Ser
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Ile Leu Phe Ser Met Leu Pro Arg Ala Ser Thr Ser Lys Glu Ile Asp
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Ala Gly Leu Leu Ser Ile Ile Ser Phe Pro Ala Phe Ala Val Glu Asp
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Val Asn Leu Val Asn Val Thr Lys Asn Glu Ile Ile Ser Lys Leu Gln
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Ser Val Lys Pro Asp Val Val Val Gln Val Thr Val Leu Ala Glu Asn
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Asn His Ile Lys Asp Leu Leu Arg Lys His Gly Val Asn Val Gln Ser
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Ile Ala Asp Ile His Pro Ile Gln Val Gln Pro Gly Arg Ile Leu Ser
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His Ile Tyr Ala Lys Leu Gly Arg Asn Lys Asn Met Asn Leu Ser Gly
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Arg Pro Tyr Arg His Ile Gly Val Leu Gly Thr Ser Lys Leu Tyr Val
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Ile Arg Asn Gln Ile Phe Thr Phe Thr Pro Gln Phe Thr Asp Gln His
515 520 525

His Phe Tyr Leu Ala Leu Asp Asn Glu Met Ile Val Glu Met Leu Arg
530 535 540

Ile Glu Leu Ala Tyr Leu Cys Thr Cys Trp Arg Met Thr Gly Arg Pro
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Tyr Phe Gly Gly Ala Arg Val Lys Leu Gly Asn Leu Ser Glu Phe Leu
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Thr Thr Ser Phe Tyr Thr Tyr Leu Thr Phe Leu Asp Pro Asp Cys Asp
 65 70 75 80

Glu Lys Leu Phe Asp Asn Ala Ser Glu Gly Thr Phe Ser Pro Asp Ser
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Asp Ser Asp Leu Val Gly Tyr Leu Glu Asp Thr Cys Asn Gln Glu Ser
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Gln Asp Glu Leu Asp His Tyr Ile Asn His Leu Leu Gln Ser Thr Ser
 115 120 125

Leu Arg Ser Tyr Leu Pro Pro Leu Cys Lys Asn Thr Glu Asp Arg His
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Val Phe Ser Ala Ile His Ser Thr Arg Asp Ile Leu Ser Val Met Ala
 145 150 155 160

Lys Ala Lys Gly Leu Glu Val Pro Phe Val Pro Met Thr Leu Pro Thr
 165 170 175

Lys Val Leu Ser Ala His Arg Lys Ser Leu Asn Leu Val Asp Ser Pro
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Gln Pro Leu Leu Glu Lys Val Pro Glu Ser Asp Phe Gln Trp Pro Arg
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Asp Asp His Gly Asp Val Asp Cys Glu Lys Leu Val Glu Gln Leu Lys
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Asp Cys Ser Asn Leu Gln Asp Gln Ala Asp Ile Leu Tyr Ile Leu Tyr
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Val Ile Lys Gly Pro Ser Trp Asp Thr Asn Leu Ser Gly Gln His Gly
245 250 255

Val Thr Val Gln Asn Leu Leu Gly Glu Leu Tyr Gly Lys Ala Gly Leu
260 265 270

Asn Gln Glu Trp Gly Leu Ile Arg Tyr Ile Ser Gly Leu Leu Arg Lys
275 280 285

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Lys Gln Leu Thr Val Gly Leu Pro Pro Glu Pro Arg Glu Lys Ile Ile
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Ser Ala Pro Leu Pro Pro Glu Glu Leu Thr Lys Leu Ile Tyr Glu Ala
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Tyr Leu Ala Met Tyr Val Arg Ala Gln Pro Ser Leu Phe Val Glu Met
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 580 585 590

Arg Gln Leu Leu Val Glu Ala Ile Met Val Leu Thr Leu Leu Ser Asp
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Thr Glu Met Thr Ser Ile Gly Gly Ile Ile His Val Asp Gln Ile Val
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Gln Met Ala Ser Gln Leu Phe Leu Gln Asp Gln Val Ser Ile Gly Ala
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Met Asp Thr Leu Glu Lys Asp Gln Ala Thr Gly Ile Cys His Phe Phe
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Tyr Asp Ser Ala Pro Ser Gly Ala Tyr Gly Thr Met Thr Tyr Leu Thr
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Tyr Ser Ile Leu Ala Val Trp Gly Leu Gly Met Ala Tyr Arg Lys Asn
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Ala Asp Arg Asp Glu Asp Lys Ala Lys Ala Tyr Glu Leu Glu Gln Asn
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Val Val Lys Leu Met Arg Gly Leu Leu Gln Cys Met Met Arg Gln Val
85 90 95

Ala Lys Val Glu Lys Phe Lys His Thr Gln Ser Thr Lys Asp Ser Leu
100 105 110

His Ala Lys Tyr Asn Thr Ala Thr Cys Gly Thr Val Val Gly Asp Asp
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Gln Trp Gly His Leu Gln Val Asp Ala Thr Ser Leu Phe Leu Leu Phe
130 135 140

Leu Ala Gln Met Thr Ala Ser Gly Leu Arg Ile Ile Phe Thr Leu Asp
145 150 155 160

Glu Val Ala Phe Ile Gln Asn Leu Val Phe Tyr Ile Glu Ala Ala Tyr
165 170 175

Lys Val Ala Asp Tyr Gly Met Trp Glu Arg Gly Asp Lys Thr Asn Gln
180 185 190

Gly Ile Pro Glu Leu Asn Ala Ser Ser Val Gly Met Ala Lys Ser Ile
195 200 205

Leu Phe Ser Met Leu Pro Arg Ala Ser Thr Ser Lys Glu Ile Asp Ala
210 215 220

Gly Leu Leu Ser Ile Ile Ser Phe Pro Ala Phe Ala Val Glu Asp Val
225 230 235 240

Asn Leu Val Asn Val Thr Lys Asn Glu Ile Ile Ser Lys Leu Gln Gly
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Arg Tyr Gly Cys Cys Arg Phe Leu Arg Asp Gly Tyr Lys Thr Pro Arg
260 265 270

Glu Asp Pro Asn Arg Leu His Tyr Asp Pro Ala Glu Leu Lys Leu Phe
275 280 285

Glu Asn Ile Glu Cys Glu Trp Pro Val Phe Trp Thr Tyr Phe Ile Ile
290 295 300

Asp Gly Val Phe Ser Gly Asp Ala Val Gln Val Gln Glu Tyr Arg Glu
305 310 315 320

Ala Leu Glu Gly Ile Leu Ile Arg Gly Lys Asn Gly Ile Arg Leu Val
325 330 335

Pro Glu Leu Tyr Ala Val Pro Pro Asn Lys Val Asp Glu Glu Tyr Lys
340 345 350

Asn Pro His Thr Val Asp Arg Val Pro Met Gly Lys Val Pro His Leu
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Trp Gly Gln Ser Leu Tyr Ile Leu Ser Ser Leu Leu Ala Glu Gly Phe
 370 375 380

Leu Ala Ala Gly Glu Ile Asp Pro Leu Asn Arg Arg Phe Ser Thr Ser
 385 390 395 400

Val Lys Pro Asp Val Val Val Gln Val Thr Val Leu Ala Glu Asn Asn
 405 410 415

His Ile Lys Asp Leu Leu Arg Lys His Gly Val Asn Val Gln Ser Ile
 420 425 430

Ala Asp Ile His Pro Ile Gln Val Gln Pro Gly Arg Ile Leu Ser His
 435 440 445

Ile Tyr Ala Lys Leu Gly Arg Asn Lys Asn Met Asn Leu Ser Gly Arg
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Pro Tyr Arg His Ile Gly Val Leu Gly Thr Ser Lys Leu Tyr Val Ile
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Arg Asn Gln Ile Phe Thr Phe Thr Pro Gln Phe Thr Asp Gln His His
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Phe Tyr Leu Ala Leu Asp Asn Glu Met Ile Val Glu Met Leu Arg Ile
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Glu Leu Ala Tyr Leu Cys Thr Cys Trp Arg Met Thr Gly Arg Pro Thr
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Leu Thr Phe Pro Ile Ser Arg Thr Met Leu Thr Asn Asp Gly Ser Asp
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Ile His Ser Ala Val Leu Ser Thr Ile Arg Lys Leu Glu Asp Gly Tyr
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Phe Gly Gly Ala Arg Val Lys Leu Gly Asn Leu Ser Glu Phe Leu Thr
 565 570 575

Thr Ser Phe Tyr Thr Tyr Leu Thr Phe Leu Asp Pro Asp Cys Asp Glu
580 585 590

Lys Leu Phe Asp Asn Ala Ser Glu Gly Thr Phe Ser Pro Asp Ser Asp
595 600 605

Ser Asp Leu Val Gly Tyr Leu Glu Asp Thr Cys Asn Gln Glu Ser Gln
610 615 620

Asp Glu Leu Asp His Tyr Ile Asn His Leu Leu Gln Ser Thr Ser Leu
625 630 635 640

Arg Ser Tyr Leu Pro Pro Leu Cys Lys Asn Thr Glu Asp Arg His Val
645 650 655

Phe Ser Ala Ile His Ser Thr Arg Asp Ile Leu Ser Val Met Ala Lys
660 665 670

Ala Lys Gly Leu Glu Val Pro Phe Val Pro Met Thr Leu Pro Thr Lys
675 680 685

Val Leu Ser Ala His Arg Lys Ser Leu Asn Leu Val Asp Ser Pro Gln
690 695 700

Pro Leu Leu Glu Lys Val Pro Glu Ser Asp Phe Gln Trp Pro Arg Asp
705 710 715 720

Asp His Gly Asp Val Asp Cys Glu Lys Leu Val Glu Gln Leu Lys Asp
725 730 735

Cys Ser Asn Leu Gln Asp Gln Ala Asp Ile Leu Tyr Ile Leu Tyr Val
740 745 750

Ile Lys Gly Pro Ser Trp Asp Thr Asn Leu Ser Gly Gln His Gly Val
755 760 765

Thr Val Gln Asn Leu Leu Gly Glu Leu Tyr Gly Lys Ala Gly Leu Asn
770 775 780

Gln Glu Trp Gly Leu Ile Arg Tyr Ile Ser Gly Leu Leu Arg Lys Lys
785 790 795 800

Val Glu Val Leu Ala Glu Ala Cys Thr Asp Leu Leu Ser His Gln Lys
805 810 815

Gln Leu Thr Val Gly Leu Pro Pro Glu Pro Arg Glu Lys Ile Ile Ser
820 825 830

Ala Pro Leu Pro Pro Glu Glu Leu Thr Lys Leu Ile Tyr Glu Ala Ser
835 840 845

Gly Gln Asp Ile Ser Ile Ala Val Leu Thr Gln Glu Ile Val Val Tyr
850 855 860

Leu Ala Met Tyr Val Arg Ala Gln Pro Ser Leu Phe Val Glu Met Leu
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Arg Leu Arg Ile Gly Leu Ile Ile Gln Val Met Ala Thr Glu Leu Ala
885 890 895

Arg Ser Leu Asn Cys Ser Gly Glu Glu Ala Ser Glu Ser Leu Met Asn
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Leu Ser Pro Phe Asp Met Lys Asn Leu Leu His His Ile Leu Ser Gly
915 920 925

Lys Glu Phe Gly Val Glu Arg Ser Val Arg Pro Ile His Ser Ser Thr
930 935 940

Ser Ser Pro Thr Ile Ser Ile His Glu Val Gly His Thr Gly Val Thr
945 950 955 960

Lys Thr Glu Arg Ser Gly Ile Asn Arg Leu Arg Ser Glu Met Lys Gln
965 970 975

Met Thr Arg Arg Phe Ser Ala Asp Glu Gln Phe Phe Ser Val Gly Gln
980 985 990

Ala Ala Ser Ser Ser Ala His Ser Ser Lys Ser Ala Arg Ser Ser Thr
995 1000 1005

Pro Ser Ser Pro Thr Gly Thr Ser Ser Ser Asp Ser Gly Gly His
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His Ile Gly Trp Gly Glu Arg Gln Gly Gln Trp Leu Arg Arg Arg
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Arg Leu Asp Gly Ala Ile Asn Arg Val Pro Val Gly Phe Tyr Gln
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Arg Val Trp Lys Ile Leu Gln Lys Cys His Gly Leu Ser Ile Asp
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Gly Tyr Val Leu Pro Ser Ser Thr Thr Arg Glu Met Thr Pro His
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Glu Ile Lys Phe Ala Val His Val Glu Ser Val Leu Asn Arg Val
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Pro Gln Pro Glu Tyr Arg Gln Leu Leu Val Glu Ala Ile Met Val
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Leu Thr Leu Leu Ser Asp Thr Glu Met Thr Ser Ile Gly Gly Ile
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Ile His Val Asp Gln Ile Val Gln Met Ala Ser Gln Leu Phe Leu
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Gln Asp Gln Val Ser Ile Gly Ala Met Asp Thr Leu Glu Lys Asp
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